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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,875	04/05/2004	Toshihiro Hirai	0038-0430PUS1	2651
2292	7590	12/05/2005	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			DOUGHERTY, THOMAS M	
			ART UNIT	PAPER NUMBER
			2834	

DATE MAILED: 12/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No. 10/816,875	Applicant(s) HIRAI ET AL.	
	Examiner Thomas M. Dougherty	Art Unit 2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 404.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>404</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Pelrine et al. (US 2002/0050769). Pelrine et al. show (fig. 1A) an actuator, comprising: a flexible sheet member (102) being made of a polymer material; and a pair of electrodes (104, 106) being respectively provided on both faces of said sheet member (102), said electrodes being made of carbon nano fibers. See paragraph [0128].

One end of the carbon nano fibers constituting said electrodes (104, 106) bite into said sheet member. See paragraph [0128] where he notes “High aspect ratio carbon materials may include the use of a polymer binder to increase adhesion with the electroactive polymer” which indicates that the electrodes are embedded to the polymer to some degree.

The polymer material is polyurethane resin. See paragraph 72 where he notes use of polyurethane, of which polyurethane resin is clearly included.

The polymer material is silicone resin. See paragraph [0072].

Pelrine et al. note material for electrodes of an actuator, which comprises a flexible sheet member (102) made of a polymer material and a pair of the electrodes

(104, 106) respectively provided on both faces of the sheet member (102), being made of carbon nano fibers. See paragraph [0128].

Claims 1-3 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Pelrine et al. (US 2002/0130673). Pelrine et al. show (fig. 2A) an actuator, comprising: a flexible sheet member (102) being made of a polymer material; and a pair of electrodes (104, 106) being respectively provided on both faces of said sheet member (102), said electrodes being made of carbon nano fibers. See paragraph [0105].

One end of the carbon nano fibers constituting said electrodes (104, 106) bite into said sheet member. See paragraph [0105] where he notes "High aspect ratio carbon materials may include the use of a polymer binder to increase adhesion with the electroactive polymer" which indicates that the electrodes are embedded to the polymer to some degree.

The polymer material is polyurethane resin. See paragraph 87 where he notes use of polyurethane, of which polyurethane resin is clearly included.

Pelrine et al. note material for electrodes of an actuator, which comprises a flexible sheet member (102) made of a polymer material and a pair of the electrodes (104, 106) respectively provided on both faces of the sheet member (102), being made of carbon nano fibers. See paragraph [0105].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over et al. (US 2002/0130673). Given the invention of Pelrine et al. as noted above, they do not note use of a polymer material that is silicone resin. It would have been obvious to one having ordinary skill in the art to employ silicone resin as a polymer material in the invention of Pelrine et al. at the time of that invention since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The remaining prior art cited reads on some aspects of the claimed invention.

Direct inquiry to Examiner Dougherty at (571) 272-2022.

tmd
tmd

November 30, 2005

Thomas M. Dougherty
TOM DOUGHERTY
PRIMARY EXAMINER